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## SPACE OPERATIONS CONTROL CENTER

# SATELLITE SITUATION REPORT

, NO Z

MICROFI

XCABX

Pauth. - MARCH 15, 1964

GODDARD SPACE FLIGHT CENTER

GREENBELT, MD.

OTS PRICE

### SPACE OPERATIONS CONTROL CENTER GODDARD SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

VOLUME 4 NO. 5

MARCH 15, 1964

SATELLITE SITUATION REPORT,

THE FOLLOWING REPORT REFLECTS DATA COMPUTED AND COMPILED BY THE GODDARD SPACE FLIGHT CENTER, NORAD, AND SMITHSONIAN ASTROPHSICAL OBSERVATORY AS OF 1200Z ON MARCH 15, 1964.

TRANSMITTING FREQ. (MC/S)	108.012 &		
PERIGEE Km.	349 651 633	542 540 511 552 549	689 705 611 704 346 473 249 470 612 609
APOGEE Km.	1620 4325 3964	3309 3682 3726 1076 1057	746 737 706 804 596 734 437 507 1054 1053
INCLI- NATION	33.20 34.25 34.23	125.5 32.86 129.7 32.91 129.9 33.34 HELIOCENTRIC ORBIT HELIOCENTRIC ORBIT 101.2 50.33 100.9 50.30	HELIOCENTRIC ORBIT 99.1 48.39 99.2 48.40 97.9 48.48 99.9 48.15 94.0 51.24 96.8 51.24 91.4 64.95 91.4 66.95 101.6 66.69
NODAL PERIOD	104.8 138.5 134.1	125.5 129.7 129.9 HELIOCEN HELIOCEN 101.2	HELIOCEN 99.1 99.2 97.9 94.0 96.8 91.4 101.6 101.6
LAUNCH	1 FEB 17 MAR 17 MAR	17 FEB 17 FEB 18 SEP 2 JAN 3 MAR 13 OCT 13 OCT	11 MAR 1 APR 1 APR 1 APR 13 APR 13 APR 15 MAY 22 JUN 22 JUN 22 JUN
SOURCE	us us us	US US USSR US US	US US US US USSR USSR USSR US
CATALOGUE NUMBER	004 016 005	011 012 020 112 113 022 023	027 028 029 101 115 031 043 045 045
CODE NAME	EXPLORER 1 ROCKET BODY VANGUARD 1 IES	VANGUARD 2 ROCKET BODY VANGUARD 3 LUNIK 1 PIONEER 4 EXPLORER 7 ROCKET BODY	PIONEER 5 ROCKET BODY TIROS 1 NONE NONE TRANSIT 1B NONE MIDAS 2 TRANSIT 2A GREB ROCKET BODY
QBJECT 1958 LAUNCHES	ALPHA 1 BETA 1 BETA 2 1959 LAUNCHES	ALPHA 1 ALPHA 2 ETA 1 MU 1* NU 1* IOTA 1	1960 LAUNCHES ALPHA 1* BETA 1 BETA 2 BETA 4 GAMMA 2 GAMMA 4 EPSILON 3 ZETA 1 ETA 1 ETA 2

OBJECT	CODE NAME	CATALOGUE	SOURCE	LAUNCH	NODAL PERIOD	INCLI- NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1960 LAUNCHES (CONT'D	(CONT'D)								
IOTA 1	ЕСНО 1	049	Sn	12 AUG	114.7	47.18	1571	1316	
IOTA 2	ROCKET BODY	020	ns	12 AUG	118.1	47.23	1687	1503	
IOTA 3	METAL OBJECT	051	SN	12 AUG	118.3	47.22	1688	1518	
IOTA 4	METAL OBJECT	052	SN	12 AUG	Ä	ELEMENTS NOT	Σ	Q	
IOTA 5	METAL OBJECT	053	Sn		118.5	47.28	1684	1538	
NU 1	COURIER 1B	058	SN	4 OCT	107.1	28.34	1216	970	
NU 2	ROCKET BODY	059	ns	4 OCT	106.6	28.23	1123	919	
XI 1	EXPLORER 8	090	SN	3 NOV	112.4	96.65	2251	419	
XI 2	ROCKET BODY	062	ns	3 NOV	112.0	96.65	2206	427	
XI 3	NONE	690	Sn	3 NOV	109.4	49.36	2007	394	
7 X	NONE	105	Sn	3 NOV	110.6	50.45	2099	413	
PI 1	TIROS 2	063	ns	23 NOV	98.3	48.51	737	614	
PI 2	ROCKET BODY	064	SN	23 NOV	98.1	48.50	729	610	
PI 3	NONE	074	SN		98.2	48.51	735	609	
PI 4	NONE	075	Sn	23 NOV	98.3	48.50	732	625	
1961 LAUNCHES									
. 410	o SON V	Ç	Ç		1		ć		
ALFRA I	SAMOS Z	0/0	2		7.4.	7.40	539	400	
ALPHA 2	METAL OBJECT	029	Sn	_	9.76	97.42	535	462	
GAMMA 1*	VENUS PROBE	080	USSR		HELIOCEN	HELIOCENTRIC ORBIT			
DELTA 1	EXPLORER 9	081	SN		102.1	38.94	1398	318	
DELTA: 2	ROCKET BODY	082	Sn	16 FEB	118.6	38.85	2591	643	
DELTA 3	NONE	085	SN	16 FEB	CURRENT	CURRENT ELEMENTS NOT	MAINTAINED	А	
KAPPA 1	EXPLORER 10	860	NS	25 MAR	POSITION	POSITION UNCERTAIN			
NU 1	EXPLORER 11	107	SN	27 APR	108.0	28.79	1769	503	
OMICRON 1	TRANSIT 4A	116	ns	NUL 62	103.8	66.82	966	879	150;400
OMICRON 2	INJUN-SR-3	117	ns	29 JUN	103.8	66.81	997	879	
OMICRON 3-206	METAL OBJECTS		ns	•					
RHO 1	TIROS 3	162	sn .	12 JUL	100.4	47.85	818	740	

CONT. D	PERIOD MALLON	Km. Km.	Km. FREQ. (MC/S)
165 US 12 JUL 166 US 12 JUL 163 US 12 JUL 163 US 12 JUL 188 US 12 JUL 196 US 12 JUL 197 US 21 OCT 197 US 21 OCT 202 US 15 NOV 205 US 15 NOV 206 US 26 JAN 221 US 26 JAN 222 US 8 FEB 229 US 8 FEB 229 US 8 FEB 271 US 9 APR 271 US 9 APR 274 US 9 APR 275 US 9 APR 275 US 9 APR 276 US 9 APR 277 US 9 APR 277 US 9 APR 278 US 9 APR 278 US 9 APR 279 US 9 APR 277 US 9 APR			
166 US 12 JUL 163 US 12 JUL 188 US 12 JUL 196 US 12 JUL 196 US 12 JUL 197 US 21 OCT 197 US 21 OCT 197 US 21 OCT 197 US 21 OCT 198 US 21 OCT 198 US 21 OCT 199 US 22 JAN 100 US 26 JAN 100 US 30	.4 47.88	804 748	
167 US 12 JUL 163 US 12 JUL 188 US 12 JUL 196 US 12 JUL 197 US 21 OCT 194 US 21 OCT 195 US 21 OCT 205 US 15 NOV 205 US 15 NOV 205 US 26 JAN 221 US 26 JAN 222 US 8 FEB 223 US 8 FEB 224 US 8 FEB 225 US 8 FEB 227 US 8 FEB 227 US 9 APR 271 US 9 APR 274 US 9 APR 274 US 9 APR 275 US 16 APR 276 US 9 APR 277 US 9 APR		798 611	
163 US 12 JUL 188 US 12 JUL 196 US 12 JUL 197 US 21 OCT 197 US 21 OCT 195 US 21 OCT 202 US 15 NOV 205 US 15 NOV 205 US 26 JAN 220 US 8 FEB 221 US 26 JAN 222 US 8 FEB 228 US 8 FEB 229 US 8 FEB 229 US 8 FEB 229 US 9 APR 271 US 9 APR 274 US 9 APR 274 US 9 APR 275 US 9 APR 276 US 9 APR 277 US 9 APR 277 US 9 APR		942 767	
188 US 12 JUL 196 US 12 JUL 170 US 16 AUG 192 US 21 OCT 195 US 21 OCT 202 US 15 NOV 205 US 15 NOV 206 US 15 NOV 207 US 26 JAN 220 US 8 FEB 221 US 26 JAN 228 US 8 FEB 229 US 8 FEB 229 US 8 FEB 229 US 8 FEB 229 US 9 APR 271 US 9 APR 274 US 9 APR 274 US 9 APR 275 US 9 APR 276 US 9 APR 277 US 9 APR 277 US 9 APR	91.14		
196 US 12 JUL 170 US 16 AUG 192 US 21 OCT 194 US 21 OCT 202 US 15 NOV 205 US 15 NOV 205 US 15 NOV 206 US 26 JAN 1221 US 26 JAN 1229 US 8 FEB 229 US 8 FEB 229 US 8 FEB 229 US 9 APR 271 US 9 APR 273 US 9 APR 274 US 9 APR 274 US 9 APR 275 US 9 APR 276 US 9 APR 277 US 9 APR 277 US 9 APR 278 US 9 APR 279 US 9 APR 279 US 9 APR 279 US 9 APR 271 US 9 APR 271 US 9 APR 276 US 9 APR 277 US 9 APR 277 US 9 APR 277 US 9 APR 278 US 278 US 9 APR	91.22	3550 3306	
170 US 16 AUG 192 US 21 OCT 194 US 21 OCT 195 US 21 OCT 202 US 15 NOV 205 US 15 NOV 204 US 15 NOV 220 US 26 JAN 1220 US 8 FEB 227 US 8 FEB 1255 US 8 FEB 229 US 8 FEB 229 US 8 FEB 271 US 9 APR 271 US 9 APR 273 US 9 APR 274 US 9 APR 282 US 23 APR	91.23		
192 US 21 OCT 194 US 21 OCT 195 US 21 OCT 202 US 15 NOV 205 US 15 NOV 204 US 15 NOV 204 US 221 US 26 JAN 222 US 8 FEB 229 US 8 FEB 229 US 8 FEB 257 US 7 MAR 257 US 9 APR 273 US 9 APR 274 US 25 APR 255 US 274 US 256 US 275 US 275 US 276 US 277 US 2	ELEMENTS NOT	MAINTAINED	
194 US 21 OCT 202 US 15 NOV 202 US 15 NOV 205 US 15 NOV 204 US 15 NOV 204 US 15 NOV 222 US 26 JAN 227 US 8 FEB 229 US 8 FEB 257 US 7 MAR 257 US 9 APR 273 US 9 APR 274 US 275 US 275 US 275 US 275 US 276 US 277 US	95.88	3728 3519	
OBJECT 195 US 21 OCT IT 4B 202 US 15 NOV IT 8DDY 204 US 15 NOV IT BODY 222 US 26 JAN IT BODY 222 US 26 JAN IT BODY 227 US 8 FEB OBJECT 229 US 8 FEB OBJECT 229 US 8 FEB OL.OBS.1 255 US 7 MAR IT BODY 257 US 9 APR 271 US 9 APR 274 US 274 US 274 US 275 US 274 US 275 US 275 US 275 US 277 US 27	96.81	3710 3505	
TT 4B 202 US 15 NOV T BODY 204 US 15 NOV T BODY 222 US 26 JAN T BODY 222 US 26 JAN T BODY 227 US 8 FEB OBJECT 229 US 8 FEB OBJECT 229 US 8 FEB OL.OBS.1 255 US 7 MAR T BODY 257 US 9 APR T BODY 273 US 9 APR T BODY 265 US 9 APR T BODY 265 US 9 APR	95.86	3762 3519	
T BODY 205 US 15 NOV T BODY 221 US 26 JAN T BODY 222 US 26 JAN T BODY 227 US 8 FEB OBJECT 228 US 8 FEB OBJECT 229 US 8 FEB OL.OBS.1 255 US 7 MAR T BODY 257 US 9 APR T BODY 273 US 9 APR T BODY 282 US 9 APR T BODY 282 US 274 US 9 APR	.9 32.43	1119 949	
T BODY 204 US 15 NOV  R 3 T BODY 222 US 26 JAN  T BODY 227 US 8 FEB  OBJECT 228 US 8 FEB  OBJECT 229 US 8 FEB  OL.OBS.1 255 US 7 MAR  T BODY 257 US 9 APR  273 US 9 APR  274 US 9 APR  274 US 9 APR  275 US 9 APR  277 US 9 APR  277 US 9 APR	.9 32.41	1106 965	
R 3 T BODY T BOD	.7 32.45	1117 938	
T BODY 221 US 26 JAN 1 BODY 222 US 26 JAN 1 BODY 227 US 8 FEB OBJECT 228 US 8 FEB OBJECT 229 US 8 FEB OL.OBS.1 255 US 7 MAR T BODY 257 US 9 APR 273 US 9 APR 274 US 9 APR 274 US 282 US 23 APR 1 BODY 282 US 23 APR 1 BODY 285 US 23 APR 285			
T BODY 222 US 26 JAN 4 226 US 8 FEB OBJECT 229 US 8 FEB OBJECT 229 US 8 FEB OL.OBS.1 255 US 7 MAR T BODY 257 US 9 APR 273 US 9 APR 274 US 9 APR 274 US 274 US 9 APR 275 US 274 US 9 APR 275 US 275 US 9 APR 275 US 275 US 9 APR 276 US 277 US 9 APR 277 US 277 APP 2	HELIOCENTRIC ORBIT		
4 226 US 8 FEB T BODY 227 US 8 FEB OBJECT 228 US 8 FEB OBJECT 229 US 8 FEB OL.OBS.1 255 US 7 MAR T BODY 257 US 7 MAR 271 US 9 APR 273 US 9 APR 274 US 9 APR 274 US 23 APR 285 US 23 APR	HELIOCENTRIC ORBIT		
T BODY         227         US         8 FEB           OBJECT         228         US         8 FEB           OBJECT         229         US         8 FEB           OL.OBS.1         255         US         7 MAR           T BODY         257         US         7 MAR           271         US         9 APR           273         US         9 APR           274         US         9 APR           274         US         9 APR           282         US         23 APR           285         US         24 APR           285         US         25 APR	.4 48.30	847 707	
OBJECT 228 US 8 FEB OBJECT 229 US 8 FEB OL.OBS.1 255 US 7 MAR T BODY 257 US 7 MAR 271 US 9 APR 273 US 9 APR 274 US 9 APR 274 US 9 APR 274 US 9 APR 274 US 23 APR 285 US 23 APR		689 656	
OBJECT 229 US 8 FEB OL.OBS.1 255 US 7 MAR T BODY 257 US 7 MAR 271 US 9 APR 273 US 9 APR 274 US 9 APR 274 US 9 APR 274 US 9 APR 282 US 23 APR 285 US 23 APR	.5 48.42		
OL.OBS.1       255       US       7 MAR         T BODY       257       US       7 MAR         271       US       9 APR         273       US       9 APR         274       US       9 APR         T BODY       282       US       23 APR         285       US       25 APR	_	837 711	
T BODY 257 US 7 MAR 271 US 9 APR 273 US 9 APR 274 US 9 APR 274 US 9 APR 1 BODY 282 US 23 APR 285 US 25 APR	.1 32.84	588 557	136.744
271 US 9 APR 273 US 9 APR 274 US 9 APR T BODY 282 US 23 APR 285 US 23 APR		595 551	
273 US 9 APR 274 US 9 APR T BODY 282 US 23 APR 285 US 24 APR	.9 86.70		
274 US 9 APR T BODY 282 US 23 APR 285 US 24 APR	86.66	3356 2802	
T BODY 282 US 23 APR	86.65	3423 2796	
20 A 70 VIII OLI 79.0	HELIOCENTRIC ORBIT		
20) 03/0V 20 AFR	53.87	1181 392	136,406
US/UK	53.87		

OBJECT	CODE NAME	CATALOGUE	SOURCE	LAUNCH	NODAL PERIOD	INCLI- NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1962 LAUNCHES (CONT'D)	ES (CONT'D)								
A ALPHA 1	TIROS 5	309	Sn	NUL 61	100.5	58.10	975	586	
A ALPHA 2	ROCKET BODY	311	Sn	NUL 91	100.4	58.08	975	578	
A ALPHA 3	METAL OBJECT	312	Sn		101.7	58.20	1090	591	
A ALPHA 4	METAL OBJECT	313	Sn		99.1	57.99	858	572	
A EPSILON 1	TELSTAR 1	340	SN		157.8	44.82	5632	959	
A EPSILON 2	ROCKET BODY	341	SN	10 JUL	157.7	44.82	5622	926	
A OMICRON 1		369	Sn		99.5	98.69	849	617	
A OMICRON 2		370	SN		98.2	98.67	755	589	
A OMICRON 3		378	SN		100.7	98.68	926	611	
A OMICRON 4		388	SN		99.5	98.68	847	618	
A RHO 1*	MARINER	374	SN	_	HEL LOCEN	HELIOCENTRIC ORBIT			
A RHO 2*	ROCKET BODY	375	SN	27 AUG	HET IOCEN	HELIOCENTRIC ORBIT			
A UPSILON 1		385	SD	1 SEP	91.9	82.80	455	278	
	TIROS 6	397	Sn	18 SEP	98.7	58.31	718	677	
A PSI 2	ROCKET BODY	398	SN	18 SEP	98.7	58.31	715	674	
A PSI 3	METAL OBJECT	399	SN	18 SEP	7.66	58.43	778	629	
A PSI 4	METAL OBJECT	400	SN	18 SEP	98.0	58.21	629	679	
B ALPHA 1	ALOUETTE	777	CANADA	29 SEP	105.4	80.47	1036	991	136.978;\$136.
	:	,							592\$136.077
	ROCKET BODY	426	ns		105.4	80.48	1027	995	
B ALPHA 3	METAL OBJECT	510	SN	29 SEP	105.3	80.51	1014	1003	
B ALPHA 4	METAL OBJECT	511	SD	29 SEP	105.4	80.42	1045	983	
B GAMMA 1	EXPLORER 14	432	ns	2 OCT	CURRENT		NOT MAINTAINED	NED	
B GAMMA 2#	ROCKET BODY	NNA	SN	2 OCT	CURRENT	CURRENT ELEMENTS NOT MAINTAINED	OT MAINTAI	NED	
B ETA 1*	RANGER 5	439	ns	18 OCT	HEL IOCEN	HELIOCENTRIC ORBIT			
B ETA 2*	ROCKET BODY	440	ns		HEL IOCEN	HELIOCENTRIC ORBIT			
B THETA 1		441	USSR		91.1	48.96	428	226	
		777	Sn	26 OCT	136.4	71.35	4602	194	
B LAMBDA 1	EXPLORER 15	445	Sn	27 OCT	312.8	18.04	17460	310	

OBJECT	CODE NAME	CATALOGUE .NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI- NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREG. (MC/S)
1962 LAUNCHES	(CONT'D)								
B LAMBDA 2#	ROCKET BODY	NNA	ns		INSUFFIC	INSUFFICIENT OBSERVATIONS	ATIONS		
	ANNA 1B	<u>4</u>	ns	31 OCT	107.9	50.15	1175	1086	162;324
	ROCKET BODY	442	Sn	31 OCT	107.6	50.14	1155	1079	
S		450	USSR		HELIOCEN	TRIC ORBIT	i.		
		502	ns		111.1	70.36	2324	230	
B TAU 2	INJUN 3	504	Sn	13 DEC	113.4	70.37	2531	235	
	<b>.</b>	508	SN		108.4	70.36	2082	227	
TAU		513	ns		111.0	70.36	2314	229	
		520	ns		112.9	70.38	5489	228	
	RELAY 1	503	SN		185.1	47.52	7441	1319	136.140;\$136.620
B UPSILON 2	ROCKET BODY	515	ns		184.9	47.52	7414	1330	
CHI 1	EXPLORER 16	206	ns		104.4	52.01	1186	242	
	TRANSIT 5A	509	SN		0•66	90.62	724	669	
PSI	•	514	Sn		97.7	90.72	719	575	
		519	SN		0.66	69.06	724	869	
PSI		523	Sn		100.1	84.06	831	669	
1963 LAUNCHES									
1963 03A		527	SN	16 JAN	7.46	81.88	530	452	
1963 04A	SYNCOM 1	553	Sn.	14 FEB		ELEMENTS NOT			
	ROCKET BODY	532	S C	14 FEB	=	ELEMENIS NOT	Ē	_	
		533	S :		9.7.6	100.50	35.5	7.74	
		534	Sn		97.6	100.50	791	501	
		535	ns		6.96	100.50	247	420	
		536	SN		98•3		834	<b>5</b> 20	
1963 08B		566	USSR	2 APR	BARYCENTRIC	LIC ORBIT			
	EXPLORER 17	564 564	SN		95.3	57.61	810	260	,
	TELSTAR 2	573	ns		225.3	42.73	10807	696	136.050

CRRTT	1
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TOTO T	֡֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜
C L	3

TRANSMITTING FREG. (MC/S)														150;400				136.234;136.922												
PERIGEE . Km.		973	7007	3551	3625	3609	3576	3605	3629	3597	242	338	224	734	727	246	553	929	627	632	588	341	415	224	844	3669	3678	3654	9400	3658
APOGEE Km•		10787	2006	3735	3659	3673	3679	3710	3655	3687	<del>1</del> 79	682	<u>\$</u>	248	え	880	781	\$	929	682	631	4107	1302	525	99+	3730	3721	3716	とせんつ	3775
INCLI- NATION		42.80	70.70	87.28	87.42	87.36	87.42	87.39	87.35	87.35	70.64	49.22	70.64	90.01	90.01	90.19	83°84	58.23	58.23	58.38	58.10	82.17	ħ <b>¿°</b> 6ħ	82.32	82.31	88•36	88.31	88.30	24.00	88•37
NODAL PERIOD		225.1	100	166.4	166.4	166.3	166.0	166.8	166.4	166.4	93.5	8.46	<b>7.</b> 06	9.66	9.66	101.2	98.1	4.76	97.3	6.76	6.96	132.3	102.1	9.46	93.7	167.8	167.8	167.4	168.0	168.2
LAUNCH		7 MAY																						NUL 62				19 JUL		
SOURCE		Sn	2 :	S	ns	SN	SN	SN	SN	ns	USSR	USSR	USSR	Sn	ns	ns	ns	ns	ns	ns	SN	ns	SU	NS	nS N	SN	ns	Sn	2 5	<b>S</b>
CATALOGUE NUMBER		575	574	579	809	589	602	628	659	702	580	582	588	264	603	610	611	<del>1</del> 09	605	909	209	614	612	613	615	622	635	630	<del>624</del>	631
CODE NAME	LAUNCHES (CONT'D)	ROCKET BODY	:														•	TIROS 7	ROCKET BODY	METAL OBJECT	METAL OBJECT		RESEARCH SATELLITE FOR GEOPHYSICS							
OBJECT	1963 LAUNCH	1963 13B	•	1963 14B	~															1963 24C			1963 26A					1963 30C		

OBJECT	CODE NAME	CATALOGUE	SOURCE	LAUNCH	NODAL PERIOD	INCLI- NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
LAUNCE	963 LAUNCHES (CONT'D)								
963 31A 😁	SYNCOM 2	634	SN	26 JUL	1436.7	32.72	35856	35739	\$136.980;\$136. 468\$1814.069; \$1815.794\$1820.
	ROCKET BODY	625	US	26 JUL	CURRENT	ELEMENTS N	NOT MAINTAINED	INED	
		632	USSR	6 AUG	9.68	48.99	287	218	
1963 38A		699	ns	28 SEP	107.0	89.91	1115	1063	
		670	Sn	28 SEP	107.3	89.92	1136	1066	
		671	ns		107.3	89.91	1137	1064	136.651
		672	ns	28 SEP	107.3	89.93	1120	1081	
		745	Sn		107.0	89.93	1111	1066	
		<b>674</b>	SN	17 OCT	CURRENT		NOT MAINTAINED	INED	
		675	Sn		CURRENT	ELEMENTS N	NOT MAINTAINED	INED	
		692	Sn	17 OCT	CURRENT	ELEMENTS N	NOT MAINTAINE	INED	
		682	Sn	29 OCT	92.8	86.68	536	287	
	POLYOT 1	683	USSR	1 NOV	102.4	58.93	1399	344	
3 43B		684	USSR	1 NOV	101.7	58.67	1330	350	
		685	USSR	1 NOV	100.0	58.92	1216	297	
	٠	989	USSR	1 NOV	101.4	59.84	1298	352	
	EXPLORER 18	693	Sn	27 NOV	5588.684		194134	1754	136.110
	CENTAUR 2	694	Sn	27 NOV	107.9	30.37	1783	476	
		969	Sn		107.3	30.07	1620	587	
		269	Sn	27 NOV	107.6	30.07	1654	576	
		869	Sn	27 NOV	108.1	29.94	1662	617	
		669	Sn	27 NOV	108.7	30.50	1764	573	
963 47F		700	Sn	27 NOV	108.7	30.48	1758	578	
		701	Sn	27 NOV	107.9	30.03	1644	<b>6</b> 16	
		739	Sn		107.9	30.41	1678	578	
49		703	Sn		106.7	96.68	1097	1054	
3 49B		704	Sn	S DEC	107.1	96.68	1120	1901	150;400

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI- NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1963 LAUNC	LAUNCHES (CONT'D)								
1963 49C		705	SN	5 DEC	107.0	96.68	1124	1055	54;162;324;648
1963 49D		902	SN	5 DEC	107.0	89.97	1114	1061	
		715	SN	5 DEC	107.0	96.68	1124	1055	
1963 49F		753	ns	5 DEC	107.1	86.68	1123	1057	
	COSMOS 23	707	USSR		6.68	66.87	327	211	
	EXPLORER 19	714	ns	19 DEC	115.7	78.63	2377	594	
		721	ns		115.7	78.62	2389	588	
		722	ns		115.9	78.64	2388	603	
		723	SN		115.8	78.59	2397	589	
		724	US		115.8	78.59	2374	809	
<b>~</b>	,	725	ns	19 DEC	115.8	78.58	2400	583	
m		726	ns	19 DEC	115.8	78.58	2390	290	
6		732	ns		115.8	78.58	2389	593	
m	TIROS 8	716	SN	21 DEC	99.3	58.49	753	702	136.233;136.
		1	!		(	(	Î	, (	924
1963 54B		717	ns		99.3	58.50	748	701	
1963 54C		720	Sn		101.1	58.48	922	695	
1963 54D		736	ns	21 DEC	97.7	58.51	716	579	
1963 55B		719	Sn		91.4	64.49	381	304	
1964 LAUNCHES	HES								
1966		727	Sn	11 JAN	103.4	69.92	932	806	
	GGSE	728	Sn		103.4	96.69	929	910	136.319
1964 10	EGRS	729	Sn	11 JAN	103.4	69.91	932	906	136.803
	SOLAR RADIATION	730	Sn		103.4	69.90	932	806	136.886
1964 1E		731	Sn		103.4	69.91	934	906	
796		733	ns		101.3	99.05	828	810	
		734	Sn		101.2	99.05	823	808	
1964 2C		735	Sn		101.2	99.05	827	808	
796	RELAY 2	737	Sn		194.7	46.29	7411	2091	136.140;\$136 .621

ECHO 2 SATURN 5 ELEKTRON 1 ELEKTRON 2
XOSMOS 25

OMICRON 1 AND 1961 OMICRON 2. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LISTS. APHELION PERIHELION IN ASTRONOMICAL UNITS, INCLINATION TO ECLIPTIC. TWO HUNDRED AND FOUR METAL OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1961 \*\*

TRANSMITTING ON COMMAND ONLY. TRANSMITTING WHEN IN SUNLIGHT ONLY.

NO CATALOGUE NUMBER ASSIGNED. \$ O O

PLEASE ADD THE FOLLOWING TO THE DECAYED OBJECTS LIST.

DECAY		9 MAR 64	4 MAR 64	12 MAR 64
LAUNCH	13 DEC	15 FEB	27 FEB	11 MAR
SOURCE	USSR	Sn	USSR	Sn
CATALOGUE NUMBER	708	752	762	765
CODE NAME				
OBJECT	1963 50B	1964 8A	1964 10C	1964 12B